REMARKS

Claims 1, 3-6, 8-9 and 11-29 are currently in this application. Claims 2, 7 and 10 have been cancelled without prejudice.

Claims 1, 8 and 25 have been amended. Claims 4, 11 and 12 have been rewritten in independent form. Support for the amendments may be found throughout the specification and in originally filed claims 7 and 10.

Reconsideration is respectfully requested.

I. Claim rejections under 35 U.S.C. §102

Claims 1, 3-5, 7-10 and 12-14 have been rejected under 35 U.S.C. §102(b) as being anticipated by Schultink (EP 0 960 645 A2) as evidenced by Chand et al. (Structure and properties of polypropylene fibers during thermal bonding, *Thermochimica Acta* 367-368 (2001) 155-160.). Claims 7 and 10 have been cancelled thereby rendering the rejection of these claims moot.

Applicants respectfully traverse the rejection of claims 1, 3-5, 8-9 and 12-14 based on Schultink.

Applicants' invention is directed to a nonwoven layer, particularly for a vacuum cleaner bag, that inhibits penetration of the filter material by elongated particles during use of the vacuum cleaner bag while maintaining high filtration efficiency for the overall bag. Claim 1 recites a nonwoven layer comprising a region with a predetermined thickness and area having an average pore size smaller than 50 μm and wherein the region is hot calendered. The fibers in the hot calendered region are bonded together such that a movement of the fibers relative to each other in a direction parallel to the surface of the layer is inhibited. Claim 4 recites a nonwoven layer comprising a region with a predetermined thickness and area having an average pore size smaller than 50 μm and wherein the region comprises an adhesive. The fibers in the adhesive region are bonded together such that a movement of the fibers relative to each other in a direction parallel to the surface of the layer is inhibited. Due to the pore size and the particular treatment of the fiber, elongated particles such as hairs, do not pierce the layer in the region.

Schultink is directed to a disposable vacuum filter bag constructed of layers which include a high-air-permeability first layer positioned upstream in the direction of air flow of a second filtration layer. (Abstract.) The Examiner refers to page 6, lines 5-20 for a discussion of fibers being bonded together. However, lines 5 and 6 on page 6 refer to a standard vacuum cleaner filter paper without any mention of bonding of fibers. The remainder of the passage on page 6, includes reference to a spunbond nonwoven. However, Schultink includes no statement regarding bonding of fibers in this passage. Page 7, lines 5-20 of Schultink refer to bonding on a dry-laid high dust capacity paper that is a completely different type of material than a spunbond nonwoven layer. Clearly, Schultink fails to teach or suggest a spunbond nonwoven layer having a hot calendered region including fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to the surface of the layer is inhibited. The spunbond layers described in Schultink seem to be conventional spunbond layers wherein the fibers are generally allowed to move relative to each other.

Schultink also fails to teach or suggest that the region of the nonwoven layer including an adhesive has fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to the surface of the layer is inhibited. The Examiner cites to page 3, lines 37-43 and FIG. 8E referring to an adhesive. However, the examples in Schultink refer to a hotmelt layer **between** two layers of filter material and not in the spunbond layer itself.

In the Advisory Action, the Examiner refers to table 6a of Schultink with reference to the pore size of the filter 53 shown in FIG. 8E. However, Table VI (including tables 6a and 6b) of Schultink does not refer to FIG. 8E, but instead to FIGS. 12-16. It is clear from the specification of Schultink, beginning in paragraph [0097] explicitly referring to Table VI, that Table VI refers to the examples in FIGS. 12-16. Table VI includes a typographical error and should refer to layers 51', 52' and 53' as described in paragraph [0097] instead of numerals 51, 52 and 53. The filter structure shown FIG. 12 corresponds to Comparative Example 1 of table 6a having three layers 51, 52, 53 whereas FIG. 8 includes five layers 53, 54, 55, 56 and 57. FIG. 12 further fails to include any spunbond layer. The pore diameter given in the third column of table 6a

refers to the wet-laid filter paper 53' in FIG. 12. Therefore, table 6a does not show any spunbond layer having an average pore diameter of less than 50 μm in a predetermined area. Schultink further fails to teach or suggest a nonwoven layer having an average pore diameter of less than 50 μm.

In contrast, claims 1 and 12 require a spunbond nonwoven layer having a hot calendered region such that fibers are bonded together in such a way that a movement of the fibers relative to each other in a direction parallel to the surface of a layer is inhibited or a method for producing the same. Claims 1 and 12 also require that the spunbond layer includes at least one region having an average pore size smaller than 50 μm. Claims 4 and 11 require a spunbond nonwoven layer having a region comprising an adhesive such that fibers are bonded together in such a way that a movement of the fibers relative to each other in a direction parallel to the surface of a layer is inhibited or a method for producing the same. Claims 4 and 11 also require that the spunbond layer includes at least one region having an average pore size smaller than 50 μm. These features are clearly not taught by Schultink.

Therefore, Applicants respectfully request that the rejection of claims 1-5, 7-10 and 12-14 under 35 U.S.C. §102(b) be withdrawn.

II. Claim rejections under 35 U.S.C. §103

A. Claim 6

Claim 6 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink in view of Ohue (U.S. 4,663,222).

Applicants respectfully traverse the rejection of claim 6 as being unpatentable over Schultink in view of Ohue.

Schultink has been discussed above with respect to claim 1 from which claim 6 depends. Ohue has been cited for disclosing the application of a hotmelt adhesive. Ohue is directed to a water-repellant nonwoven fabric made of a melt-blown fiber. (Abstract.) Ohue fails to make up the deficiencies of Schultink. Schultink and Ohue, individually or in combination, fail to teach or suggest all the limitations of claim 6.

Therefore, Applicants respectfully request that the rejection of claim 6 under 35 U.S.C. §103(a) be withdrawn.

B. Claim 11

Claim 11 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink in view of Fluent (U.S. 4,941,309).

Applicants respectfully traverse the rejection of claim 11 as being unpatentable over Schultink in view of Fluent.

Schultink has been discussed above and fails to teach or suggest a method for producing a spunbond nonwoven layer having a region comprising an adhesive such that fibers are bonded together in such a way that a movement of the fibers relative to each other in a direction parallel to the surface of a layer is inhibited or a method for producing the same and further that the spunbond layer includes at least one region having an average pore size smaller than 50 μm. Fluent has been cited for disclosing application of a hotmelt to obtain bonding of the fibers. (Abstract.) Fluent fails to make up the deficiencies of Schultink. Schultink and Fluent, individually or in combination, fail to teach or suggest all the limitations of claim 11.

Therefore, Applicants respectfully request that the rejection of claim 11 under 35 U.S.C. §103(a) be withdrawn.

C. Claims 15-25, 28 and 29

Claims 15-25, 28 and 29 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink. As acknowledged by the Examiner, Schultink fails to teach or suggest a layer having a smaller surface area than the filter structure.

Applicants respectfully traverse the rejection of claims 15-25, 28 and 29 as being unpatentable over Schultink.

Applicants' claims 15 and 22 require a filter paper layer having a smaller surface area than the filter structure. A conventional or filter paper is produced using a conventional paper making process which is known by one skilled in the art. Such conventional filter paper is described in paragraph [0027] of Schultink. Schultink also describes wet-laid or dry laid high duct capacity paper in paragraphs [0030]-[0051]

having different parameters from the standard filter paper. As defined in Applicants' specification at paragraph 0045, wet-laid or dry-laid high capacity paper are nonwovens, in contrast to conventional filter paper. In the examples given in Schultink, including Figure 8H cited by the Examiner, only nonwoven layers are disclosed. No paper layers are disclosed.

Further, even if one disregards the fact that the filter paper layer of the present invention does not correspond to a high capacity layer as disclosed in Schultink, the high capacity layer of Schultink is the most important layer in all the embodiments. The high capacity layer has a high capacity to store dust particles. The high capacity layer taught by Schultink must be present over the entire area of the filter structure. Otherwise, regions in which the high capacity layer is not present would be clogged. Therefore, Schultink teaches away from having a paper layer purposely having a smaller surface area than the filter structure.

In contrast, claims 15 and 22 require a filter structure and a filter paper layer having a smaller surface area than the filter structure. The filter structure may include a nonwovern layer which is provided with a filter paper having a smaller area than the filter structure. The filter paper is provided to avoid piercing of the filter structure by elongated particles such as hairs, but should not significantly deteriorate the overall air permeability of the filter structure. Clearly, Schultink fails to teach or suggest a filter structure and a filter paper having a smaller surface area than the filter structure.

Therefore, Applicants respectfully request that the rejection of claims 15-25, 28 and 29 under 35 U.S.C. §103(a) be withdrawn.

D. Claim 26

Claim 26 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink in view of Lutz (Polyproplyene: An A-Z Reference, pp. 301-303).

Applicants respectfully traverse the rejection of claim 26 as being unpatentable over Schultink in view of Lutz.

Schultink has been discussed above with respect to claim 1 from which claim 26 depends. Lutz has been cited for pulverized polymer. Lutz fails to make up the

deficiencies of Schultink. Schultink and Lutz, individually or in combination, fail to teach or suggest all the limitations of claim 26.

Therefore, Applicants respectfully request that the rejection of claim 26 under 35 U.S.C. §103(a) be withdrawn.

E. Claim 27

Claim 27 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Schultink in view of Fluent and further in view of Lutz.

Applicants respectfully traverse the rejection of claim 11 as being unpatentable over Schultink in view of Fluent.

Schultink and Fluent have been discussed above with respect to claim 11 from which claim 27 depends. Lutz has been cited for pulverized polymer. Lutz and Fluent fail to make up the deficiencies of Schultink. Schultink, Fluent and Lutz, individually or in combination, fail to teach or suggest all the limitations of claim 27.

Therefore, Applicants respectfully request that the rejection of claim 27 under 35 U.S.C. §103(a) be withdrawn.

III. Summary

Applicants respectfully assert that the claims are in condition for early allowance. Allowance of the claims is earnestly solicited. Should the Examiner wish to discuss any of the above submissions in more detail, the Examiner is asked to please call the undersigned at the telephone number listed below.

Respectfully submitted,

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